Adapting to a Changing Climate

FY 2014 President's Proposed Budget
Total request is $67,822,000 (+$16,428,000 above FY 2012 enacted level)

Climate change is one of the greatest natural resource challenges the world faces. The USGS has conducted research for over 100 years to understand the impacts of climate change on people, landscapes, fisheries, and wildlife. This credible science is needed to help policymakers, land managers, and the American people make informed and balanced decisions on complex questions about climate change impacts to the Nation.

The proposed budget increase in 2014 would support priority research in three programs, which are (1) the National Climate Change and Wildlife Science Center and the Department of the Interior Climate Science Centers, (2) Climate Research and Development, and (3) Biological Carbon Sequestration. This science is conducted under the USGS Climate and Land Use Change Mission Area.

National Climate Change and Wildlife Science Center (NCCWSC) and Department of the Interior Climate Science Centers (CSCs)

The NCCWSC was established in 2008 and manages eight regional CSCs. Together, they provide managers and decisionmakers with important science about the impacts of climate change on fish, wildlife, and ecosystem services important to society, such as clean water and cultural resources. In 2013, Interior required bureaus to incorporate climate adaptation into policies, programs, planning, and operations. To accomplish this, improved understanding is needed on what assets are most vulnerable to climate change, ultimately helping bureaus prioritize their management needs.

The proposed budget would allow the NCCWSC to assist with adaptation planning for many key challenges, particularly sea-level rise impacts to coastal communities and how extended drought affects ecosystems. Additional focus would be placed on incorporation of USGS biological carbon sequestration research results (discussed in the below section of this document) into adaptation planning across the landscape. The NCCWSC and CSCs would also work with tribal communities to understand their resource management concerns related to climate change. Further, the NCCWSC would use the proposed funding to implement a system that tracks and enhances coordination of climate change science across Federal agencies. The NCCWSC would also develop a public database and field guide to help other agencies create standards and best practices for vulnerability assessments. The CSCs would use funding to work with regional partners to identify and develop multi-agency strategies on common priorities, as well as provide science grants to support adaptation planning.

Climate Research and Development (R&D)

The USGS has for many decades conducted the complex research needed to understand patterns of climate and land-use change and their impacts on Earth's system. With 2014 funding, the Climate R&D Program would focus efforts on understanding regional responses and estimating future scenarios. This information is critical for resource managers as they develop and implement adaptation and mitigation plans.

The USGS would use proposed funding to improve estimates of potential sea-level rise by studying geological records and contributions from melting glaciers and ice sheets. Scientists would also look at how sea-level rise could impact coastal communities, infrastructure and habitats that serve as buffers from storm surges and severe weather events. More than half of the U.S. population lives in ocean and Great Lakes coastal counties, and USGS scientists are working with natural resource managers to develop sustainable strategies to protect these vulnerable areas. Funding would allow the USGS to enhance research to better understand long-term patterns of drought. This is increasingly important, as our nation and many parts of the world have recently endured intense droughts, and these are expected to increase in the future. The USGS would further use the proposed funding to initiate research how changes in ocean circulation link to droughts, storms, and other events that affect coasts, urban areas, and agriculture.

Biological Carbon Sequestration

The Energy Independence and Security Act of 2007 (P.L. 110-140) called for the Secretary of the Interior to complete a quantitative national assessment of the carbon stored in and released from the Nation's ecosystems. This assessment will help inform land management policies and planning for the long-term storage of carbon to lessen the impacts of climate change. In 2014, the USGS will complete the national assessment, including Alaska and Hawaii. The proposed budget would support this project and USGS efforts to assist land managers and policymakers with using the assessment results in management decisions.

The USGS would specifically use the additional funding to improve the methodology and models to account for and monitor carbon in ecosystems and to quantify interactions between carbon storage, land use, and climate change. Scientists would also develop and test improved models to assess the impacts of land use decisions on carbon sequestration. Additional funds would be used to focus on key science and information gaps, such as quantifying greenhouse gas emissions in different types of wetlands, assessing the impacts of disturbances such as insect infestation and diseases, and integrating terrestrial and aquatic processes in selected watersheds. The project would also link the national assessment results to land management applications on Fish and Wildlife Service Refuges and National Parks.

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